Heating & Air Conditioning
Amana®
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ATK01/04/06

Ambient Thermostat Kit
Installation Instructions

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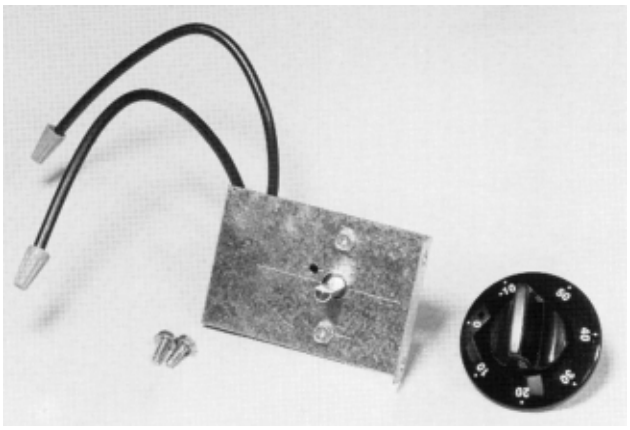
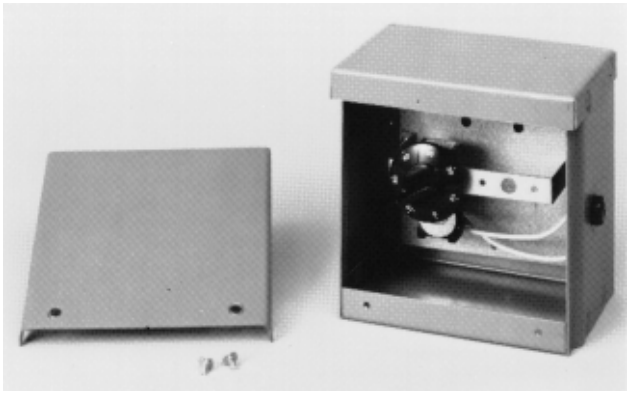


ATK05, ATK06



ATK01, 04
FIGURE 1

⚠ RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

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10091205

General

These ambient temperature control thermostats can be employed in conjunction with the room thermostat to control the electric heaters that have been added to Amana heat pump or cooling systems. The purpose of an ambient thermostat is to limit the amount of electric heat to more closely match with the building loss.

Description

ATK01

This kit includes an ambient thermostat mounted in a weatherproof box for installation exterior to the unit. This kit is used for ambient control on all Amana package models and remote cooling models, including air conditioning and heat pump package units.

ATK04 (SPECIAL APPLICATION ONLY)

This kit is the same as the ATK01 except that the thermostat has a maximum setting of 25°F. This kit is required when installing 24.0 or 28.8 kW electric heat in the SPHO48 or 60 models.

ATK06

This kit includes an ambient thermostat and mounting bracket. It can be installed in the control boxes of Amana ARHF, ERHF, SRHF, ZRHF, RHA, RHD, and RHE remote heat pumps. This kit is also used to control additional heaters for all applications; add to the control box of Amana remote heat pumps; add to the weatherproof box (ATK01, ATK04) of Amana package and remote cooling models. The ATK06 thermostat has a maximum setting of 25°F and is required when installing 24.0 or 28.8 kW electric heat with the SRHF42-48 or ERHF42-60 models.

Installation

REMOTE HEAT PUMPS

The ambient thermostat is designed to be installed in the space allocated in the control box of the remote units (Figures 2-5).

⚠ WARNING

To avoid possible electrical shock, injury or death; disconnect the electrical power before installing the ambient thermostat(s).

1. Remove unit control panel cover by taking out the sheet metal screws that secure it.
2. Install the ATK thermostat in the existing holes in the control box, as shown in the following photographs.
3. RHA**B3 models will require two (2), 7/64" holes to be drilled in dimple locations (See Figure 7).
4. Place the ATK in the proper location and secure the bracket with two (2) sheet metal screws provided.
5. For wiring connections, consult the outdoor unit wiring diagram, or turn to the appropriate page in this manual.
6. Set thermostat(s) to the proper outdoor temperature.
7. Reinstall the service door to the control box.

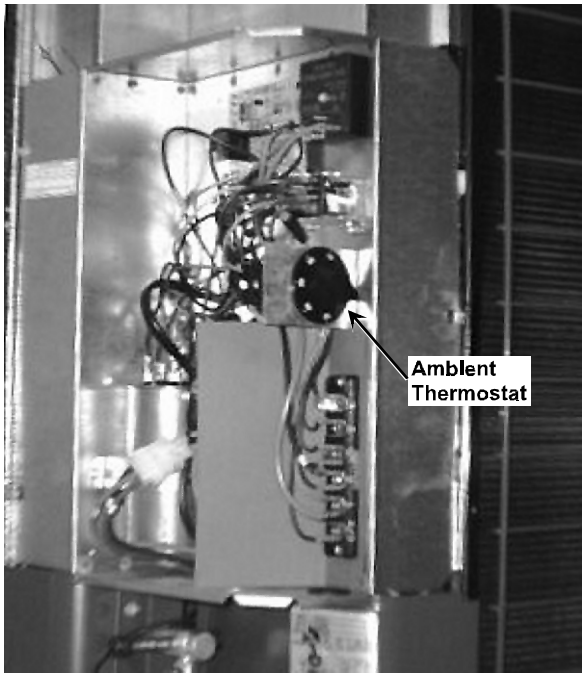


FIGURE 2
RHAA*A/RHD/RHE MODELS**

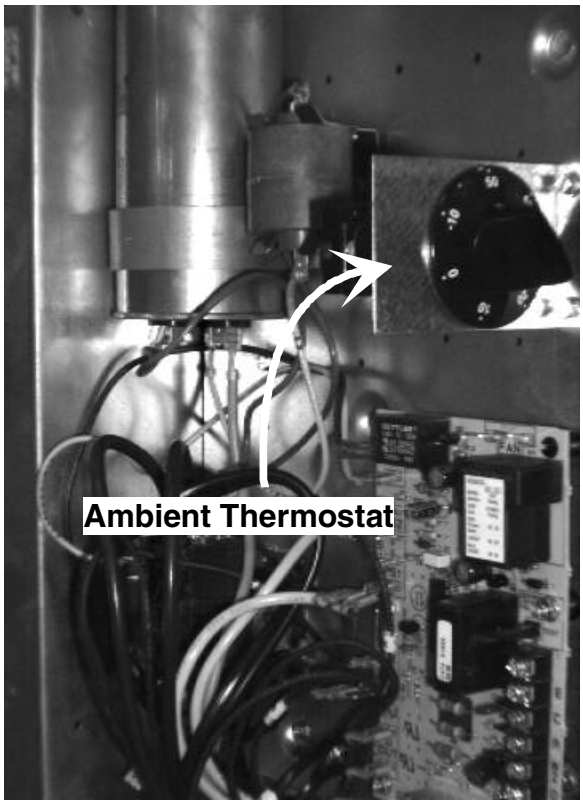


FIGURE 3
RHAA*B MODELS**

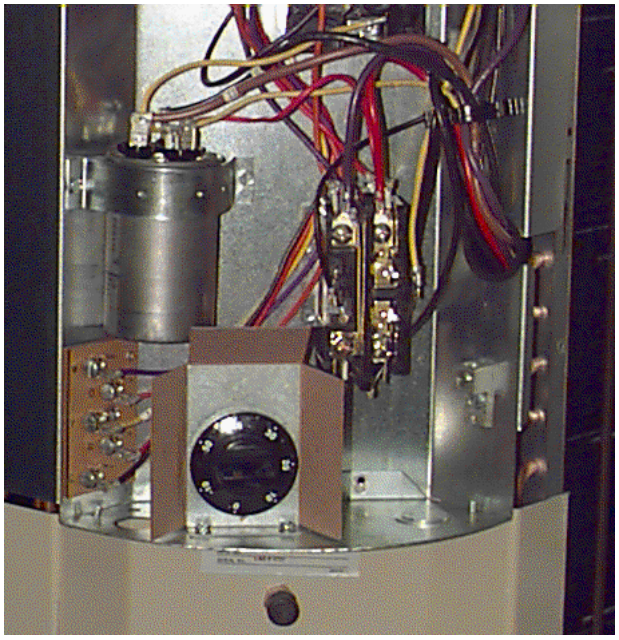


FIGURE4
SINGLE PHASE LOCATION
RCBB2A/RHA**B2A**

FIGURE 5
THREE PHASE LOCATION
RCBB3A/RHA**B3A**

PACKAGE UNITS (PH*'S)
The ambient thermostats used with package units are available with a separate weatherproof box as shown in Figure 1 (ATK01, ATK04).

⚠ WARNING

To avoid possible electrical shock, injury or death; disconnect the electrical power before installing the ambient thermostat(s).

1. For package units, select a location for mounting the control box on the right hand side of the unit (See Figure 6) .

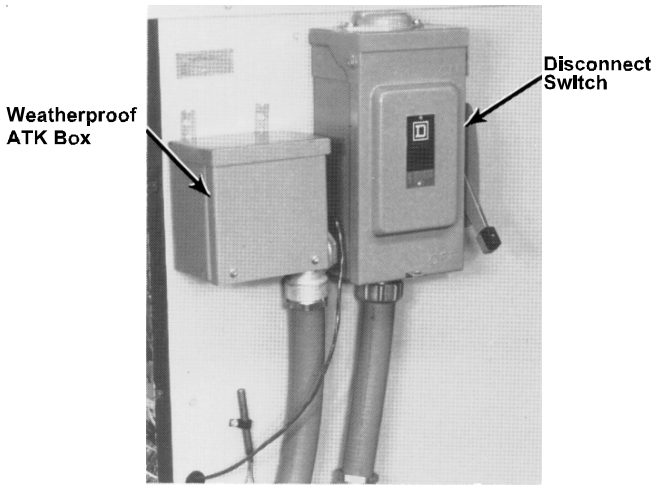


FIGURE 6
CONTROL BOX LOCATION

2. When an additional weatherproof box is required (ATK01 or ATK04), select a location on the right side of the unit most convenient for your application.
3. Attach the mounting brackets to the back of the weatherproof box with 1/4" screws provided.
4. Attach the box to the appropriate location by using two self-drilling 1/4" screws.
5. Using an appropriate length of 24V control wire, route the control wires through the low-voltage entrance. Consult the wiring diagram in the package unit or the appropriate page in this manual to connect the thermostats to the remainder of the system.
6. Set thermostat to proper outdoor temperature.

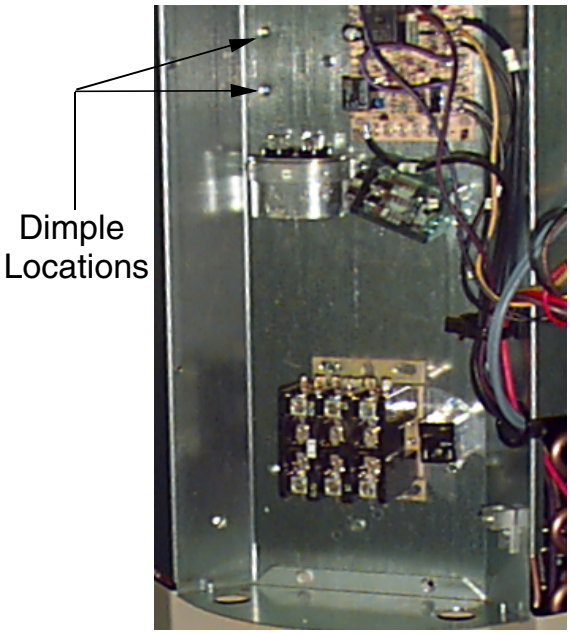


FIGURE 7
RCBB3/RHA**B3**

REMOTE COOLING ONLY UNITS RCB, RCC, RCE, WITH BLOWER COILS INDOORS

WARNING

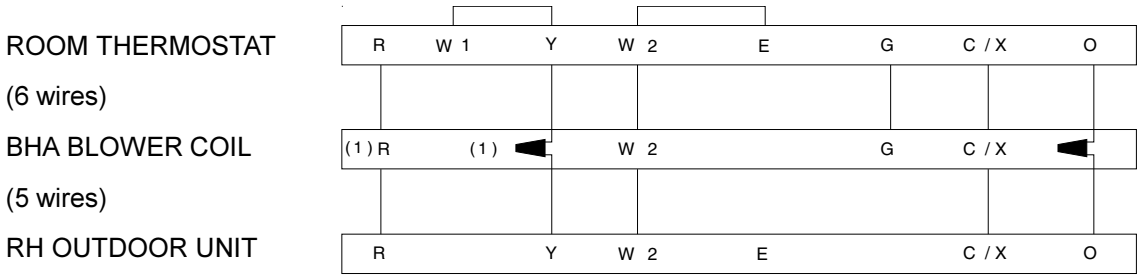
To avoid possible electrical shock, injury or death; disconnect the electrical power before installing the ambient thermostat(s).

1. Remove unit control panel cover by taking out the sheet metal screws that secure it.
2. Install the ATK thermostat in the existing holes in the control box, as shown in Figures 2, 4, or 5.
3. RCB**B3* will require two (2), 7/64” holes to be drilled in dimple locations (See Figure 7).
4. Place the ATK in the proper location and secure the bracket with two (2) sheet metal screws provided.
5. For wiring connections, consult the outdoor unit wiring diagram, or turn to the appropriate page in this manual.
6. Set thermostat(s) to the proper outdoor temperature.
7. Reinstall the service door to the control box.

Typical low voltage wiring schematics for this type of installation may be found in the back of this manual.

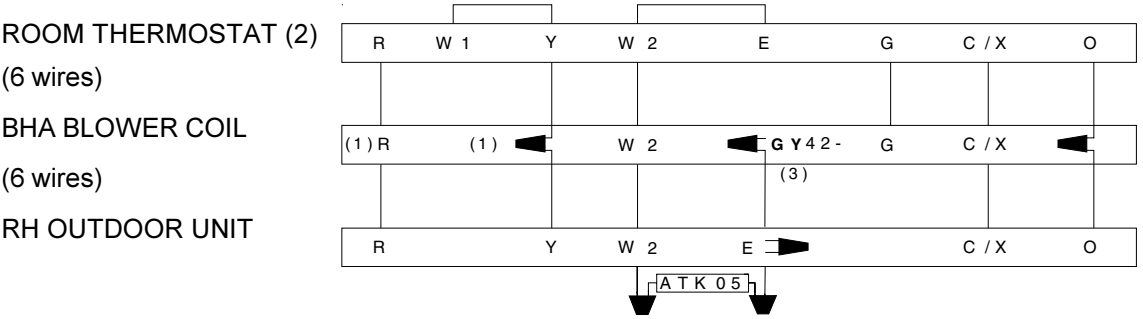
RH-HEAT PUMP WITH INDOOR BLOWER COIL
WITH APPROVED THERMOSTATS*

A) No Outdoor Thermostat - Electric Heat Supplied During Defrost



Notes: (1) BHA-TB blowers may require additional wire(s) here. See BHA-TB wiring diagram for details.

B) With Outdoor Thermostat - Electric Heat Supplied During Defrost
ATK Not Controlling 1st Group of Electric Heaters - 19.2 to 28.8 kW



Notes: (1) BHA-TB blowers may require additional wire(s) here. See BHA-TB wiring diagram for details.
(2) "Emergency Heat" will stop the compressor, but it will not bypass the outdoor thermostat. Only the amount of heat controlled by W2 will be energized above the ATK setpoint.
(3) See notes on Figure 8 regarding connector, GY42 wire, and staging of electric heat.

* Approved Thermostats are: D9945804
10636702
10636701
D9807605

Thermostats shown with required connections only. Thermostats may have other terminals not shown in diagrams.

WARNING

To avoid personal injury, shock or death, disconnect the electrical power before electrically connecting any equipment or changing any existing wiring.

COLOR CODE	
1ST GROUP COLOR	
2ND GROUP NUMBER	
OR-ORANGE	BK-BLACK
YL-YELLOW	BU-BLUE
VT-VIOLET	RD-RED
BR-BROWN	TN-TAN
GN-GREEN	GY-GRAY

RH-HEAT PUMP WITH INDOOR BLOWER COIL
WITH APPROVED THERMOSTATS*

C) ATK Controlling ALL Electric Heat
Morning Warmup Could be Slow - 4.8 to 28.8KW

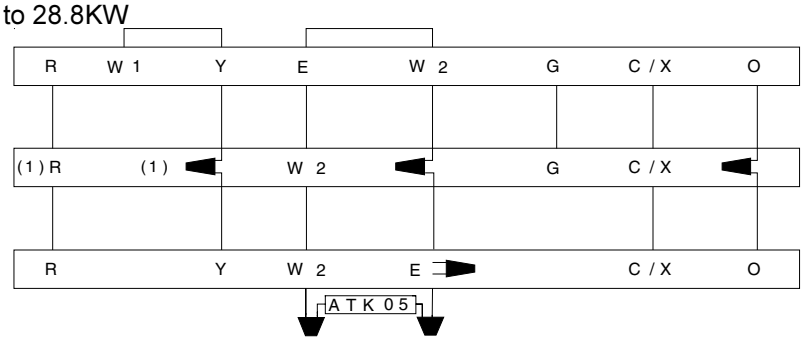
ROOM THERMOSTAT

(6 wires)

BHA BLOWER COIL

(6 wires)

RH OUTDOOR UNIT



Notes: (1) BHA-TB blowers may require additional wire(s) here. See BHA-TB wiring diagram for details.

D) With Outdoor Thermostat - ATK Controlling ALL Electric Heat
Morning Warmup Could be Slow -
4.8 to 28.8KW

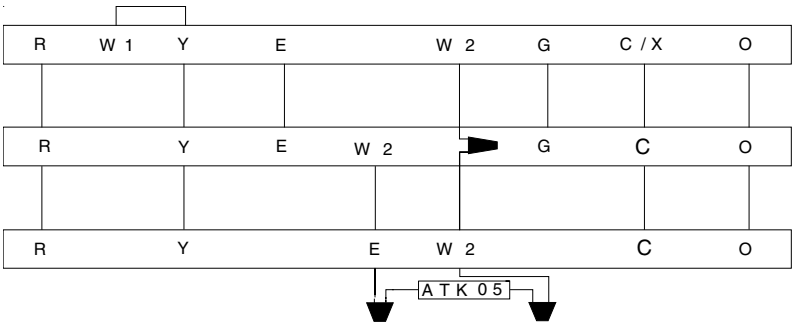
ROOM THERMOSTAT

(6 wires)

BBA or BBC BLOWER COIL

(6 wires)

RH OUTDOOR UNIT



E) ATK Controlling ALL Electric Heat Except In The Defrost Mode

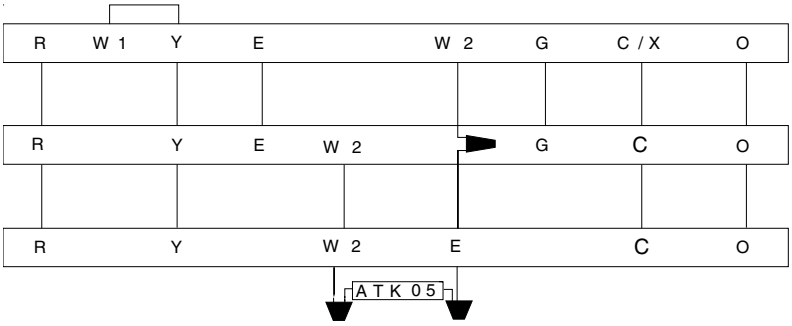
ROOM THERMOSTAT

(6 wires)

BBA or BBC BLOWER COIL

(6 wires)

RH OUTDOOR UNIT



* Approved Thermostats are: D9945804
10636702
10636701
D9807605

WARNING

To avoid personal injury, shock or death, disconnect the electrical power before electrically connecting any equipment or changing any existing wiring.

COLOR CODE	
1ST GROUP COLOR	
2ND GROUP NUMBER	
OR-ORANGE	BK-BLACK
YL-YELLOW	BU-BLUE
VT-VIOLET	RD-RED
BR-BROWN	TN-TAN
GN-GREEN	GY-GRAY

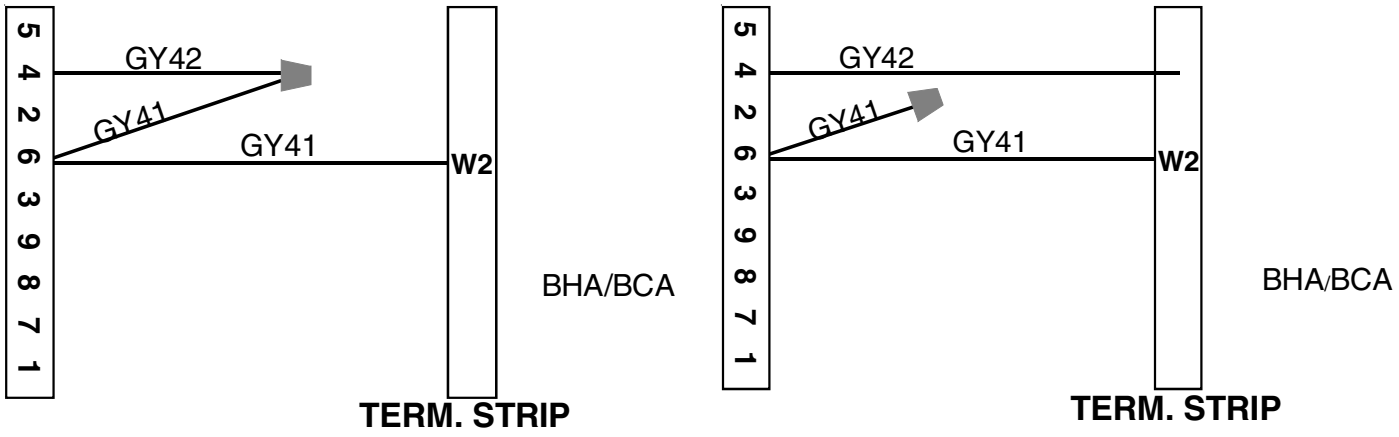


FIGURE 8
ELECTRIC HEAT STAGING USING GY42 For BHA/BCA BLOWERS

Connector in blower coil is shipped as shown above. If an outdoor thermostat, not controlling the first group of electric heaters, is to be used:

1. Disconnect power.
2. Remove and save wire nut shown above.
3. Extend GY42 wire into the low voltage terminal area.
4. Connect the GY42 wire as shown on the wiring schematic for your system.
5. Wire nut and tape the unused GY41 wire to prevent shorts.

Heater Kit	KW from W2	KW from GY42	Total KW
EHK20A/B	9.6	9.6	19.2
EHK25A/B	14.4	9.6	24
EHK30A/B	19.2	9.6	28.8

⚠ WARNING

To avoid personal injury, shock or death, disconnect the electrical power before electrically connecting any equipment or changing any existing wiring.

EXAMPLE APPLICATION OF A HEAT PUMP SYSTEM

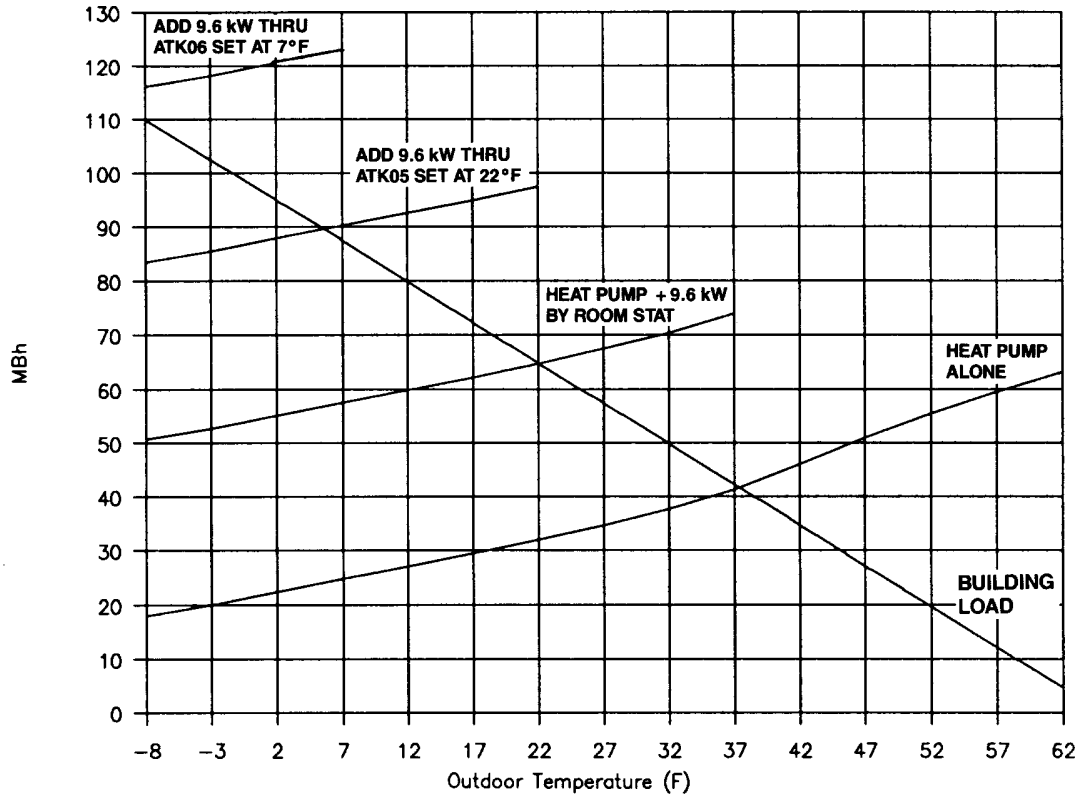


FIGURE 9
Graph of Building Load and Unit Capacity

EXAMPLE APPLICATION OF A HEAT PUMP SYSTEM

1. Use maual J or Right-J or equivalent to calculate the building's heating and cooling loads at design conditions. In this example, the building load has been calculated to be 110 MBh at design conditions of -8°F.
2. The building load can be plotted as in Figure 9. The load is assumed to decline linearly from the design condition to 0 MBh at an ambient temperature of 65°F. The building load can also be tabulated, as in Figure 10.
3. Select the heat pump size to meet the cooling load.
4. Plot theheating capacity of the heat pump as in Figure 9, and tabulated in figure 10. The unit heating capacity at various outdoor temperatures can be from the units "Specification Sheet."
5. Examination of the graph or table shows that the heat pump alone is far below having enough capacity to meet the design load at -8°F. Supplemental electric heat needs to be installed which, combined with the heat pump, will nearly match the house load.
6. Each bank of 9.6 kW of supplemental electric heat adds aproximately 32.7 MBh of heating capacity to the total system. The table in Figure 10 has columns for each 9.6 kW added to the system. The graph, Figure 9, has parallel curves for each 9.6 kW added to the system.
7. Installation of an outdoor thermostat is optional and depends on how the heaters can be staged. The table, Figure 8, shows available staging on EHK20 through EHK30 heaters. Staging of electric heaters in the BBA02A or BBC02A is performed automatically by the blower control board, and can not be broken out individually.
8. Observing the graph in this example, 28.8 kW have been installed. If the electric heater is an EHK30, only the last 9.6 kW can be controlled by an ATK05 or ATK06. The temperature setting on the ATK would be approximately 7°F The room thermostat would control the first two, 9.6 kW banks when the 37 degree balance point is reached..

NOTE: Fan motor speed and room thermostat heat anticipators may need adjustment to match unit size and amount of electric heat. See unit and heater kit wiring diagrams.

Outdoor Ambient °F	Bldg Heat Load, MBh	Heat Pump Cap. MBh	Heat Pump + 9.6 KW MBh	Heat Pump + 19.2 KW MBh	Heat Pump + 28.8 KW MBh	Outdoor Thermostat Used*
62	4.5	63.2				None
57	12.1	59.5				None
52	19.6	55.5				None
47	27.1	51.0				None
42	34.7	46.0				None
37	42.2	41.3	74.1			None
32	49.7	37.7	70.4			None
27	57.3	34.7	67.4			None
22	64.8	32.0	64.7	97.5		ATK05
17	72.3	29.4	62.1	94.9		ATK05
12	79.9	27.1	59.8	92.6		ATK05
7	87.4	24.8	57.5	90.3	123.1	ATK05&ATK06
2	94.9	22.4	55.1	87.9	120.6	ATK05&ATK06
-3	102.5	20.0	52.7	85.5	118.2	ATK05&ATK06
-8	110.0	18.0	50.7	83.5	116.2	ATK05&ATK06

* Note: ATK06 must be installed w henever BHK05 or BHK06 are installed. ATK06 has a maximum setting of 25°F

FIGURE 10
Table of Building Load and Unit Capacity